

Notice of Allowability

Application No.

10/633,521

Applicant(s)

ISHIHARA ET AL.

Examiner

Huan H. Tran

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE request filed on 08/19/05.
2. ☒ The allowed claim(s) is/are 1-15 and 48-63.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____



Huan Tran
Primary Examiner
AU 2861

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 08/19/05 has been entered.

Allowable Subject Matter

2. Claims 1-15, 48-63 are allowed.

3. The following is an examiner's statement of reasons for allowance: As to claim 1 and dependent claims thereof, prior art of record do not teach or suggest –alone or in combination- the claimed optical scanning device and an image forming apparatus using the same, the scanning optical device comprises “a scanning optical system for scanning a surface to be scanned, with the light beam deflected by a deflecting means; wherein said scanning optical system includes a scanning optical element disposed so that, with respect to a sub-scan direction, a principal ray of the deflected light beam passes a portion other than an optical axis of the scanning optical system, wherein said scanning optical element has a sagittal aspherical amount changing surface in which an aspherical amount of a sagittal changes along a main scan direction of said scanning optical element, and wherein, within an effective scan range upon the surface to be scanned, the position in the sub-scan direction upon which the deflected light beam impinges is made even.” The claimed scanning optical element corrects the scan line bending when the light beam is obliquely incident upon the deflecting means.

Art Unit: 2861

Similarly, claim 48 and dependent claims thereof are allowable because of the inclusion of the limitations "wherein the light beam emitted from said light source means is incident on a plane, perpendicular to a rotational axis of said deflecting means, with a certain angle defined thereto, wherein said imaging optical system includes an imaging optical element disposed so that, with respect to a sub-scan direction, a principal ray of the deflected light beam passes through an inside of said imaging optical element away from an optical axis, wherein said imaging optical element has a sagittal aspherical amount changing surface in which said sagittal aspherical amount changes along a main scan direction of said imaging optical element, wherein said sagittal aspherical amount changing surface has an absolute value of said sagittal aspherical amount which increases along the sub-scanning direction, and wherein said sagittal aspherical amount changing surface has a sagittal curvature radius which changes along the main scan direction independently of a meridional curvature radius thereof."

Claim 56 and dependent claims thereof are allowable for the inclusion of the limitations "wherein the light beam emitted from said light source means is incident on a plane, perpendicular to a rotational axis of said deflecting means, with a certain angle defined thereto, wherein said imaging optical system includes an imaging optical element disposed so that, with respect to a sub-scan direction, a principal ray of the deflected light beam passes through a portion away from an optical axis of said imaging optical element, wherein said imaging optical element has a sagittal aspherical amount changing surface in which said sagittal aspherical amount changes along a main scan direction of said imaging optical element, and wherein said sagittal aspherical amount changing surface has a sagittal curvature radius which changes along the main scan direction independently of a meridional curvature radius thereof"

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the

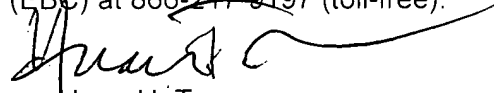
Art Unit: 2861

issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huan H. Tran whose telephone number is (571) 272-2261. The examiner can normally be reached on at work on W-F from 6:30 to 5; T are telework days.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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09/09/05

Art Unit: 2861

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. The amendment was made to correct an apparent typographic error. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:


In the claims:

Claim 62, line 3, change "plurality o image" to --plurality of image--.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huan H. Tran whose telephone number is (571) 272-2261. The examiner can normally be reached on at work on W-F from 6:30 to 5; T are telework days.

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9/9/05